NATIONAL DEFENSE UNIVERSITY
STRATEGIC FORUM
INSTITUTE FOR NATIONAL STRATEGIC STUDIES

Number 53, November 1995

Other Military

Operations & Technology

by Gary Wheatley

Summary

- Other Military Operations (OMO) missions are typically poorly defined, complex, difficult and dangerous. Unclear mission goals and guidance and a changing environment place great strains on the military forces involved.
- Technology applications offer opportunities to improve OMO effectiveness and safety.
- The first OMO technology requirement is for systems that minimize casualties. Next needed are technologies that control levels of violence and that can fill the gap between inaction and the use of deadly force.
- Needed systems include: mine clearing, anti-sniper and language interpretation.
- The use of advanced technologies in OMO generates training requirements and training opportunities.
- Technology is not a cure-all, but its innovative use can help to achieve better performance with lower risk of casualties.
- Technologies considered for OMO must have "dual-use" capability (they must add value to warfighting capability as well as OMO).
- A variety of systems from low to high technology are in development; however, there presently appears to be little or no coordination nor structure in the process. This in turn has led to overlap and duplication of effort.

Background

Other Military Operations (formerly called Operations Other than War-OOTW) include peace operations and a diverse group of non-traditional military activities ranging from disaster relief to drug interdiction to noncombatant evacuation. Because of its training and culture, the U.S. military has been reluctant to engage in OMO. But, such operations are becoming more common, in many cases subsuming traditional military missions. Many nations and non-nation groups, reluctant to confront the U.S. military head-on, can find ways to challenge the United States indirectly. In other cases, internal problems in foreign countries cause conditions that U.S. policy makers cannot ignore. Given these conditions, the U.S. military appears to be involved in OMO for the foreseeable future.

OMO missions are typically poorly defined, complex, difficult and dangerous. What started as a humanitarian mission in Somalia degraded into urban guerrilla warfare. Unclear mission goals and guidance and a changing environment place great strains on the military forces involved.

Technology applications offer opportunities to improve OMO effectiveness and safety. While not a cure-all, innovative use can help to achieve better performance with lower risk of casualties.

Common requirements

The first and perhaps most important OMO technology requirement is for systems that minimize casualties. These can be defined in three broad categories. First are systems that create time and space. Those involved in OMO need time to keep situations from escalating and to develop alternative courses of action. Space is a visible or invisible barrier that separates antagonists or protects one's own forces. For example, a system that can stop a vehicle could provide both time and space: time to inspect for explosives and space between the vehicle and potential targets until the inspection is completed.

Next are technologies that control levels of violence. These include methods for individual and crowd control, ways to separate belligerents from other belligerents and from non-combatants, and ways to monitor the separation. Other supporting technology includes systems that can find and neutralize snipers, concealed weapons and so on.

Finally, technologies that can help fill the gap between inaction and the use of deadly force have the potential both to enhance the chances for mission success and reduce casualties on all sides. They include the so-called non-lethal weapons (NLW) that are widely touted and mostly misunderstood.

Non-lethal weapons (NLW)

This class of weapons has generated considerable interest in the media and elsewhere; however, it is not a panacea and should be viewed as a two-edged sword. First, the concept of NLW is misunderstood and has created expectations both in the media and the public that cannot be met. The popular view of NLW has the expectation of no casualties. The reality is an attempt to avoid fatalities. This difference between expectations and reality may account for the public outrage expressed at police use of stun guns, or potential battlefield use of blinding lasers.

Second, NLW are not replacements for lethal force, and the use of NLW shouldn't prevent the use of lethal force if needed. Rather, their use needs to be integrated as part of a system that provides more options to the commander on the scene.

Other requirements

Operators have specific, immediate technology requirements. Prominent examples are: mine clearing, anti-sniper systems, and language interpretation technologies. Mine clearing emerges as the most important. Between 80 and 110 million land mines now litter 64 different countries. These hidden killers maim or kill an estimated 500 people every week, mostly innocent civilians. They also greatly complicate any OMO and place our forces at great risk. No single technology works in every environment or situation; what may work well in a desert is useless in heavy vegetation. Next needed are anti-sniper systems, especially in urban environments. Prototype systems that use infrared to track a bullet path back to the sniper show promise. Some are coupled with automatic shoot-back or

illumination features. Language interpretation capability is the technology requirement most cited by operators. Language difficulties greatly complicate OMO across the spectrum of dealing with coalition partners to communicating with indigenous populations.

The use of advanced technologies in OMO generates training requirements and training opportunities. While the complexities of OMO coupled with training required for use of NLW are great, technology training applications can facilitate the task. Imbedded training systems and virtual reality applications can be used to train not only U.S. forces, but also coalition and non-military players likely to be present in OMO scenarios.

A variety of systems from low to high technology are in development. However there presently appears to be little or no coordination or structure in the process. This, in turn, has led to overlap and duplication of effort.

Issues and challenges

As can be seen from the discussion of NLW, application of technology to OMO does not come without cost. In addition to the direct costs of developing and fielding a technology are the indirect costs of training, doctrine development, and other issues such as rules of engagement and how this technology might be shared with coalition partners. Further, the military is unlikely to invest either directly or indirectly in any technology that does not have a warfighting application as well as utility for OMO. In fact, workshop participants were unanimous in their view that any technology considered for OMO must have such "dual use" capability.

Technology selection considerations

There are numerous criteria and considerations to weigh when choosing what technological solutions to pursue. The following are considered some of the most important:

Does it save lives: This is the primary factor to be considered when considering a technology for use or development.

Feasibility: While many good ideas have emerged, the competition for resources dictates that only the most feasible are funded.

Dual-use: Technologies selected must have a wargfighting application as well as OMO importance.

Political acceptability: Without acceptance by the general public (as in the case of some NLW), the solutions will not be supported and probably will not be used, however effective. Further complications arise from the public expectation of no or low casualties in OMO.

Cost effectiveness: As with feasibility, a balance between what is possible and affordable must be struck.

Trainability: Since most OMO likely will be coalition operations, the systems developed must be trainable not only to U.S. troops, but also to coalition partners.

Workshop Findings

- OMO operators and the research and development communities have much to discuss and relatively few opportunities for dialogue.
- The requirements process presently lacks structure. The efforts of different agencies overlap and duplicate each other. The operational community is, for reasons both structural and cultural, not active in the requirements process.
- Application of technology to OMO is often neither simple nor straightforward; it can be influenced by diverse factors, such as public opinion and the environment.
- Systems that work in deserts may be useless in jungles, forests, or urban centers. Tools that are safe in open areas may have unacceptable consequences in crowded areas. Where the immediate threat is low, technologies that work slowly or require detailed preparation are useful, but they cannot help in urgent situations.
- Technological solutions to OMO problems bring with them numerous implications. These implications include legal, doctrinal, rules of engagement-related, and training questions, as well as concerns about combat readiness for warfighting and what may be shared with coalition partners.
- Several technologies are needed today, including: mine clearing, counter-sniper and counter-mortar capabilities, language interpretation and improved training capabilities.
- Logistics and training would benefit greatly from adoption of existing concepts and systems, such as commercial parcel tracking and virtual reality.
- OMO missions are typically poorly defined, complex, difficult and dangerous.
- Technology is not a cure-all, but its innovative use can help to achieve better performance with lower risk of casualties.
- Technologies considered for OMO must have "dual-use" capability; that is, they must add value to warfighting capability as well as OMO._

About the author

RADM Gary Wheatley, USN (Ret.) is a former carrier aviator and commanding officer who presently specializes in advanced technologies and command and control.

About the Workshop

The workshop on Other Military Operations (OMO) and Technology was sponsored by the INSS Center for Advanced Concepts and Technology (ACT) as the fourth in its series exploring advanced command relationships and technologies. The OMO and Technology issue emerged as a qualitatively different problem from findings in earlier ACT workshops that explored command and control in peace operations. The workshop brought together a knowledgeable group of U. S. military operators and civilian technologists from both government and industry to discuss these issues on a not-for-attribution basis. The group sought insights into the process of determining what technologies are required for OMO, and examined the complexities of introducing relevant technologies. General and specific OMO technologies in various stages of development were evaluated and discussed. For additional information regarding this and other ACT workshops, please contact the Director, ACT at (202) 287-9210, ext. 545, or the workshop chairman, Rear Admiral Gary Wheatley, USN (Ret.) at (703) 893-6800 EXT. 24.

NOTE

The Strategic Forum provides summaries of work by members and guests of the Institute for National Strategic Studies and the National Defense University faculty. These include reports of original research, synopses of seminars and conferences, the results of unclassified war games, and digests of remarks by distinguished speakers.

Editor - Jonathan W. Pierce

INTERNET DOCUMENT INFORMATION FORM

A . Report Title: Other Military Operations & Technology

B. DATE Report Downloaded From the Internet: 10/01/01

C. Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #): National Defense University Press
Institute for National Strategic Studies
Washington, DC 20001

D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: __VM__ Preparation Date 10/01/01

The foregoing information should exactly correspond to the Title, Report Number, and the Date on the accompanying report document. If there are mismatches, or other questions, contact the above OCA Representative for resolution.